

**ORIGINAL**

Before The  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

In re Petition of National )  
Telecommunications and Information )  
Administration to Amend Part 25 of the )  
Commission's Rules to Establish )  
Emissions Limits for Mobile and Portable )  
Earth Stations Operating in the )  
1610-1660.5 MHz Band with respect to )  
Radio-Navigation Satellite Systems )  
Operating at 1559-1610 MHz )

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RM-9165 FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**COMMENTS ON  
PETITION FOR RULEMAKING**

Pursuant to Section 1.405 of the Commission's Rules, L/Q Licensee, Inc. ("LQL"), by its undersigned attorneys, hereby supports the efforts of the National Telecommunications and Information Administration ("NTIA") to establish rules for out-of-band emissions limits for mobile and portable earth stations ("METs") communicating with space stations operating in the 1610-1660.5 MHz band.

LQL is the licensee of the Globalstar™ nongeostationary orbit ("NGSO"), mobile-satellite service ("MSS") system which is authorized to operate in the 1610-1626.5/2483.5-2500 MHz frequency bands.<sup>1</sup> It has participated in various proceedings regarding the subject matter of NTIA's Petition before the Commission and in other fora since the 1.6/2.4 GHz bands were allocated for MSS in 1992. As a party directly affected by the imposition of limits on out-of-band

<sup>1</sup> Loral/Qualcomm Partnership, L.P., 10 FCC Rcd 2333 (Int'l Bur. 1995), review and recon. denied, 11 FCC Rcd 18502 (1996).

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emissions from MSS METs into receivers operating with GLONASS and the Global Positioning System ("GPS"), LQL requests that the Commission expeditiously take whatever steps are necessary to develop appropriate rules as requested by the NTIA.

The Commission has previously stated that it anticipated adoption of the recommendation of the RTCA, Inc., on limits for out-of-band emissions from METs operating in these bands.<sup>2</sup> However, as the Commission is aware, the RTCA was unable to reach a consensus.<sup>3</sup> NTIA's proposal -- like the resolution of this issue anticipated from the RTCA -- represents a compromise between aviation and MSS interests. As such, it is entitled to the same deferential and expedited treatment which the Commission planned for the RTCA report. Expedited action on this Petition would serve the public interest by helping to resolve the long-standing debate regarding protection requirements for GLONASS receivers anticipated for use with the Global Navigation Satellite System ("GNSS").<sup>4</sup>

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<sup>2</sup> See Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures (Notice of Proposed Rulemaking), 10 FCC Rcd 10624, 10631 (1995).

<sup>3</sup> See Assessment of Radio Frequency Interference Relevant to the GNSS, Doc. No. RTCA/DO-235 (Jan. 27, 1997).

<sup>4</sup> See Amendment of the Commission's Rules To Establish Rules and Policies Pertaining To a Mobile-Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 5936 (1994) ("Big LEO Rules Order"), modified on recon., 11 FCC Rcd 12861 (1996).

I. THE PROPOSED RULES WOULD SERVE THE PUBLIC INTEREST BY RESOLVING THE DEBATE REGARDING OUT-OF-BAND EMISSIONS INTO GLONASS RECEIVERS.

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Since the frequency allocation for commercial MSS systems in the 1610-1626.5 MHz band was adopted at the 1992 World Administrative Radio Conference ("WARC-92"), there has been continuing debate concerning the requirements for protection of radio-navigation satellite service systems, i.e., GPS and GLONASS, operating in that and adjacent frequency bands. Out-of-band emissions limits to protect GPS have been identified; however, the limits to protect the Russian Federation's GLONASS system remain at issue. It is these requirements for which the NTIA Petition proposes a solution.

GPS and GLONASS. GPS and GLONASS operate under the radio-navigation satellite service ("RNSS") allocation in the 1559-1610 MHz band.<sup>5</sup> GPS operates in the 1565.2-1585.6 MHz band, and GLONASS operates in the 1597-1610 MHz band. GLONASS also currently operates in the aeronautical radio-navigation satellite service ("ARNSS") allocation in the 1610-1626.5 MHz band pursuant to International Footnote RR 732 (RR No. S5.366).<sup>6</sup>

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<sup>5</sup> See Big LEO Rules Order, 9 FCC Rcd at 5983.

<sup>6</sup> The GPS system includes 21 satellites with three operating spares, and uses the same frequencies for all satellites, centered at 1575 MHz. GLONASS is designed for a constellation of 24 satellites using one frequency each. The initial GLONASS frequency plan placed Channel 1 for the course/acquisition (C/A) code at 1602.5625 MHz, and each successive channel had a center frequency 0.5625 MHz above the next, with Channel 24 at 1615.5 MHz. See Report of the MSS Above 1 GHz Negotiated Rulemaking Committee, Report of Drafting Group 2B of Informal Working Group 2 (Inter-Service Sharing Issues), "Technical Report on

MSS Allocation. At WARC-92, the ITU adopted a primary allocation for MSS (earth-to-space) in the 1610-1626.5 MHz band, which is paired with the allocation for MSS (space-to-earth) at 2483.5-2500 MHz.<sup>7</sup> The Commission has adopted the ITU allocations into the U.S. Table of Frequency Allocations.<sup>8</sup>

The WARC-92 MSS allocation was made subject to certain requirements with respect to operation of RNSS and ARNSS systems. RR 731E (RR No. S5.364) provides that the use of the 1610-1626.5 MHz band is subject to notification and coordination procedures in Resolution 46 (RR No. S9.11bis) adopted at WARC-92. RR 731E provides that mobile earth stations shall not produce an EIRP density in excess of -15 dB (W/4kHz) in the part of the band used by systems operating in accordance with the provisions of RR 732 (e.g., GLONASS) or an EIRP density of -3 dB (W/4kHz) in any other part of the band, unless accepted by the affected administrations. RR 731E also states that MSS stations shall not cause harmful interference to, or claim protection from, stations in the ARNSS and stations operating in accordance with the provisions of RR 732. RR 731E was incorporated into the U.S. Table.

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MSS/RDSS Sharing with the Aeronautical Radionavigation and Radionavigation-Satellite Services," at 1-2 (Apr. 6, 1993) ("IWG-2 Technical Report").

<sup>7</sup> See Addendum and Corrigendum to the Final Acts of the 1992 World Administrative Radio Conference (Malaga-Torremolinos 1992).

<sup>8</sup> See Amendment of Section 2.106 the Commission's Rules to Allocate the 1610-1626.5 MHz and the 2483.5-2500 MHz Bands for Use by the Mobile-Satellite Service, 9 FCC Rcd 536 (1994).

MSS Rulemaking. Protection requirements for GPS and GLONASS were at issue within the MSS Above 1 GHz Negotiated Rulemaking Committee ("NRC") during the Commission's proceeding for adopting rules for Big LEO systems.<sup>9</sup> During the NRC, the Federal Aviation Administration ("FAA") indicated that the International Civil Aviation Organization ("ICAO") and the U.S. aviation industry were considering the use of GLONASS in conjunction with GPS as part of the GNSS for terminal communications and approach navigation for civil aircraft. The NRC concluded that GLONASS receivers on high altitude aircraft could be protected from interference from MSS systems operating co-frequency in the 1610-1626.5 MHz band, but that such protection was not possible for terminal and approach communications. To avoid nullifying the MSS co-channel allocation at 1610-1616 MHz, the NRC recommended that GLONASS be reconfigured so that it would not operate above 1610 MHz. The NRC also recommended adopting the EIRP density limits in RR 731E.

The Commission proposed to adopt the recommendations of the NRC with respect to the EIRP density limits of RR 731E for Big LEO systems.<sup>10</sup> At that time, the Commission noted that it had initiated interagency and international

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<sup>9</sup> See IWG-2 Technical Report, at § 2.1.

<sup>10</sup> See Amendment of the Commission's Rules To Establish Rules and Policies Pertaining To a Mobile-Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands, 9 FCC Rcd 1094 (1994) ("Big LEO NPRM").

negotiations regarding GLONASS, and that it was optimistic that GLONASS could be reconfigured as recommended by the NRC.<sup>11</sup>

The Commission eventually adopted the in-band protection requirements for GLONASS set forth in RR 731E. Despite requests from the aviation community, the Commission concluded that it was not necessary to protect GLONASS operations beyond the EIRP density limits set forth in RR 731E and the obligation to coordinate MSS systems pursuant to that footnote and ITU Resolution 46.<sup>12</sup>

With respect to out-of-band protection requirements for GLONASS operations below 1610 MHz, the Commission declined to make a decision. The NRC had been unable to agree on limits or a suitable methodology for developing such limits, and had recommended waiting to do so until a reconfiguration plan for GLONASS had been adopted.<sup>13</sup> The Commission also deferred its decision, awaiting the outcome of the deliberations of Special Committee 159 of the RTCA, Inc., which was evaluating proposals from the aviation and MSS communities for the appropriate level of protection.<sup>14</sup>

Post-NRC Developments. Since the NRC, the Russian Federation has indicated that it plans to move GLONASS operations to below 1605 MHz by 2005

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<sup>11</sup> Id. at 1124.

<sup>12</sup> Big LEO Rules Order, 9 FCC Rcd at 5986.

<sup>13</sup> IWG-2 Technical Report, at 35.

<sup>14</sup> Big LEO Rules Order, 9 FCC Rcd at 5989-90.

with its highest effective channel at 1604.25 MHz center frequency.<sup>15</sup> As the Commission has recognized, this revised GLONASS frequency plan would eliminate the need for in-band protection requirements for MSS systems operating above 1610 MHz. The out-of-band protection emissions limits for GLONASS operations below 1605 MHz remain at issue because the members of SC 159 of the RTCA were unable to reach consensus on the appropriate emissions mask for MSS METs. The aviation and MSS industries submitted separate statements on the issue which are attached to the RTCA Report.<sup>16</sup>

As the NTIA points out in its Petition, it has continued discussions with interested MSS operators and the FAA to develop mutually-acceptable protection requirements. As a result, the NTIA has formulated the time-phased approach set forth in the Petition. Under this approach, out-of-band protection requirements for GPS will remain at -70 dBW/MHz for wideband signals and -80 dBW/MHz for narrowband signals.

For GLONASS, the NTIA proposal presents a time-phased approach for METs operating in the 1610-1660.5 MHz band. METs operating at 1610-1626.5 MHz introduced prior to January 1, 2002, would be required to meet out-of-band emissions limits of -64 dBW/MHz for wideband signals in the 1580.42-1605 MHz

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<sup>15</sup> See id. at 5957 n.60; see also, e.g., "Protection of Receivers in the Radionavigation-Satellite Service Systems from Interference Produced by Earth Stations in Mobile-Satellite Service Systems," DOC SG8D/SRG/5, at 3 (Mar. 4-6, 1997) (submitted by Russian Federation).

<sup>16</sup> See Assessment of Radio Frequency Interference Relevant to the GNSS, Doc. No. RTCA/DO-235 (Jan. 27, 1997).

band and -74 dBW/MHz for narrowband signals at 1585.42-1605 MHz. METs operating in the 1610-1660.5 MHz band introduced after January 1, 2002, must meet the -70 dBW/MHz and -80 dBW/MHz limits for wideband and narrowband signals in the 1559-1605 MHz band. METs introduced before that date would have to be deactivated, modified to meet the more stringent limits, or controlled with hardware/software to operate on frequencies at the upper end of the MSS band. This approach represents a viable compromise which would provide the flexibility sought by MSS interests and the stringent protection requirements sought by the aviation industry.

## II. THE PETITION SHOULD BE GRANTED EXPEDITIOUSLY.

The public interest would be served by an expeditious resolution of the out-of-band emissions levels for MSS METs. Globalstar fully supports NTIA's efforts to resolve this issue and recommends that the Commission take the necessary steps toward adoption of this proposal. Expeditious resolution would help promote United States leadership in new MSS services. For example, the initial launches of Globalstar™ satellites are scheduled for the first quarter of 1998. From that point forward, the system must undergo in-orbit testing to ensure on-schedule commencement of commercial service in the first quarter of 1999. Moreover, the out-of-band emissions limits have an impact on the design and production of METs and the costs associated with system operation and service. It is thus critical for



that information to be available to LQL and the service providers for Globalstar™ as soon as possible.

The NTIA has worked with both the MSS and aviation industries to develop the proposals in the Petition consistent with the Commission's efforts since WARC-92. The Commission sought to achieve a compromise during the NRC in 1993. It then encouraged the parties to continue discussing unresolved issues, including protection requirements for GLONASS receivers. This issue was referred to the industry groups working within the RTCA. Although the RTCA did not reach an agreement on these requirements, the NTIA Petition is a direct product of the Commission's encouragement of the affected parties to resolve this issue among themselves, and it should be given the same treatment as the compromise which the Commission anticipated would develop in the RTCA.

Resolving the out-of-band protection requirements soon will also promote the Commission's long-standing goals for MSS. When it adopted the rules for MSS Above 1 GHz systems, the Commission recognized the benefits to consumers and the United States economy of the new satellite systems. It noted:

The United States has led the world in developing and implementing satellite technology. We expect many of the economic, cultural and other gains we have seen in the fixed-satellite industry to be reflected in the new mobile satellite industry. The Big LEO proposals before us represent an opportunity for the United States to continue its leadership role in promoting global developments through enhanced communication infrastructures and services. We intend to license these systems as quickly as possible so that this opportunity is not lost.<sup>17</sup>

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<sup>17</sup> Big LEO Rules Order, 9 FCC Rcd at 5941.

The Commission did license the systems relatively quickly, and Globalstar™ has kept up the pace by staying several years ahead of its implementation milestones.<sup>18</sup> Resolution of the GLONASS protection requirements represents one of the last regulatory hurdles to establish the United States' pre-eminent position in the MSS industry, and so, such resolution should be sought quickly. Completion of this rulemaking should be a high priority for the Commission in order to ensure expeditious availability of commercial MSS services.

### III. CONCLUSION

For the reasons set forth above, LQL recommends that the Commission grant the Petition and establish an expedited schedule to adopt out-of-band emissions levels for METs operating in the 1610-1660.5 MHz band.

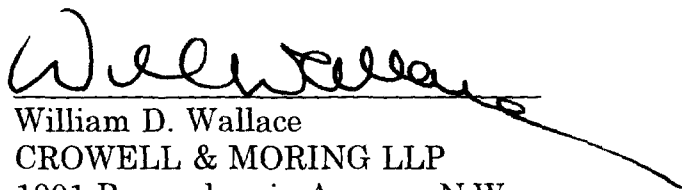
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Date: December 8, 1997

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<sup>18</sup> See id. at 6008 (entire constellation must be operational within six years of authorization).

## CERTIFICATE OF SERVICE

I, William D. Wallace, hereby certify that I have on this 8th day of December, 1997, caused copies of the foregoing "Comments on Petition for Rulemaking" to be delivered via hand delivery (indicated with \*) or by U.S. mail, postage prepaid, to the following:

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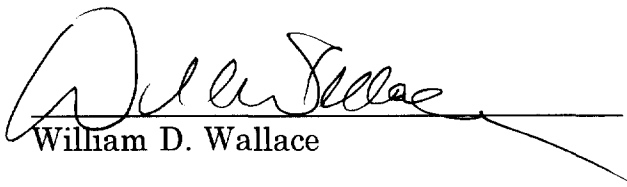
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